

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 1)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -x^5 - 5x^3 - 7x^2 - 3x + 9$$

$$q(x) = -6x^5 - 7x^4 + x^3 - 5x + 10$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -7x^2 - 2x + 5$$

$$b(x) = 4x + 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 1)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 2x^3 + 14x^2 + 3x + 23 \\g(x) &= x + 7\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+7}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 2x^3 + 14x^2 + 3x + 23$. Evaluate $f(-7)$.

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Polynomial Operations PRACTICE (version 2)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 6x^5 - 8x^3 + x^2 - 5x - 7$$

$$q(x) = 3x^5 - 6x^4 + 8x^3 - 10x + 1$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 6x^2 - 7x + 8$$

$$b(x) = -4x - 5$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 2)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 6x^3 - 25x^2 + 4x + 6 \\g(x) &= x - 4\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 4}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 6x^3 - 25x^2 + 4x + 6$. Evaluate $f(4)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 3)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -7x^5 + 2x^3 + 3x^2 + 9x - 8$$

$$q(x) = 2x^5 + 5x^4 + 9x^2 + x - 6$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 5x^2 - 4x + 7$$

$$b(x) = -4x - 6$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 3)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -2x^3 + 19x^2 - 23x - 5 \\g(x) &= x - 8\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -2x^3 + 19x^2 - 23x - 5$. Evaluate $f(8)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 4)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 3x^5 - 10x^4 + 7x^3 + 4x^2 + 5$$

$$q(x) = -2x^5 - 8x^4 + x^3 - 3x - 6$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 2x^2 + 7x - 4$$

$$b(x) = 5x + 2$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 4)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -3x^3 - 16x^2 + 7x - 26 \\g(x) &= x + 6\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+6}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -3x^3 - 16x^2 + 7x - 26$. Evaluate $f(-6)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 5)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -9x^5 + 10x^4 - 5x^2 - 6x + 3$$

$$q(x) = -10x^5 + 5x^4 - 8x^3 + x - 4$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -3x^2 - 7x - 5$$

$$b(x) = 4x + 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 5)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -2x^3 - 7x^2 + 14x - 11 \\g(x) &= x + 5\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+5}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -2x^3 - 7x^2 + 14x - 11$. Evaluate $f(-5)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 6)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 + 9x^3 + 3x^2 - x - 2$$

$$q(x) = -5x^5 + 8x^4 + 6x^2 + 9x + 2$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 6x^2 - 8x + 5$$

$$b(x) = -3x - 6$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 6)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -2x^3 + 19x^2 - 11x + 23 \\g(x) &= x - 9\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 9}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -2x^3 + 19x^2 - 11x + 23$. Evaluate $f(9)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 7)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 7x^5 + 2x^4 - 9x^2 + 6x - 3$$

$$q(x) = -10x^5 + 3x^4 - 4x^3 + 6x - 9$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 5x^2 + 7x - 4$$

$$b(x) = 4x - 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 7)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= x^3 - 6x^2 - 19x + 26 \\g(x) &= x - 8\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = x^3 - 6x^2 - 19x + 26$. Evaluate $f(8)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 8)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -2x^5 + 7x^4 - 10x^3 - 9x^2 + 1$$

$$q(x) = 4x^5 + 8x^4 - 10x^3 - x - 7$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 8x^2 - 3x - 6$$

$$b(x) = 3x - 6$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 8)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -3x^3 + 29x^2 - 19x + 15 \\g(x) &= x - 9\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 9}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -3x^3 + 29x^2 - 19x + 15$. Evaluate $f(9)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 9)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 6x^5 + 8x^4 - 3x^3 - 4x + 7$$

$$q(x) = 3x^5 - 6x^3 + x^2 + 7x + 5$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 4x^2 - 2x - 8$$

$$b(x) = -2x - 5$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 9)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 6x^3 - 24x^2 - 28x - 17 \\g(x) &= x - 5\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 5}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 6x^3 - 24x^2 - 28x - 17$. Evaluate $f(5)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 10)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -10x^5 + 7x^4 + 8x^3 - 3x - 2$$

$$q(x) = -8x^5 - 6x^3 - 9x^2 + 3x + 2$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -3x^2 - 6x + 9$$

$$b(x) = -3x + 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 10)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 3x^3 + 21x^2 + 25x - 28 \\g(x) &= x + 5\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+5}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 3x^3 + 21x^2 + 25x - 28$. Evaluate $f(-5)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 11)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 + 9x^4 + x^2 + 5x + 4$$

$$q(x) = 7x^5 - 5x^4 - 3x^3 + 9x^2 - 10$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -7x^2 + 4x + 8$$

$$b(x) = -6x + 3$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 11)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -x^3 - 8x^2 - 9x + 25 \\g(x) &= x + 6\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+6}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -x^3 - 8x^2 - 9x + 25$. Evaluate $f(-6)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 12)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 7x^5 - 5x^4 - 4x^2 + 2x + 3$$

$$q(x) = 10x^5 - 7x^4 + 8x^3 - 5x^2 - 1$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 4x^2 - 6x + 5$$

$$b(x) = -8x + 4$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 12)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -x^3 + 6x^2 + 16x - 2 \\g(x) &= x - 8\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -x^3 + 6x^2 + 16x - 2$. Evaluate $f(8)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 13)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 5x^5 + 6x^4 - 8x^3 - 9x^2 + 10$$

$$q(x) = -7x^5 - 10x^4 + 5x^3 - x + 8$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -3x^2 + 2x - 7$$

$$b(x) = 4x - 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 13)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 4x^3 + 22x^2 + 14x + 19 \\g(x) &= x + 5\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+5}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 4x^3 + 22x^2 + 14x + 19$. Evaluate $f(-5)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 14)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -4x^5 - 2x^3 - 7x^2 - x + 6$$

$$q(x) = 7x^5 + x^4 - 6x^3 + 3x^2 - 5$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -7x^2 - 5x + 3$$

$$b(x) = 3x - 5$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 14)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -x^3 + 9x^2 + 4x - 29 \\g(x) &= x - 9\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 9}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -x^3 + 9x^2 + 4x - 29$. Evaluate $f(9)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 15)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -10x^5 + x^3 - 6x^2 + 8x + 5$$

$$q(x) = x^5 + 5x^4 - 9x^3 - 2x - 10$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -5x^2 - 3x + 8$$

$$b(x) = -4x - 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 15)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -5x^3 - 29x^2 + 8x + 9 \\g(x) &= x + 6\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+6}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -5x^3 - 29x^2 + 8x + 9$. Evaluate $f(-6)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 16)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 - 6x^3 + 10x^2 + 3x - 9$$

$$q(x) = -8x^5 + 6x^4 + x^3 + 3x - 5$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 7x^2 - 5x - 4$$

$$b(x) = -8x + 2$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 16)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= x^3 - 11x^2 + 24x + 9 \\g(x) &= x - 8\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = x^3 - 11x^2 + 24x + 9$. Evaluate $f(8)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 17)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 7x^5 - 10x^4 + 9x^2 + 2x + 1$$

$$q(x) = -4x^5 - 6x^3 + 3x^2 - 10x + 1$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 2x^2 - 8x - 6$$

$$b(x) = -7x + 3$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 17)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 2x^3 - 18x^2 + x - 6 \\g(x) &= x - 9\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 9}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 2x^3 - 18x^2 + x - 6$. Evaluate $f(9)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 18)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -2x^5 + 6x^4 - 4x^2 + 3x + 7$$

$$q(x) = -x^5 - 5x^3 - 8x^2 + 7x + 3$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -2x^2 - 5x - 8$$

$$b(x) = 8x - 5$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 18)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -6x^3 + 27x^2 + 18x - 13 \\g(x) &= x - 5\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 5}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -6x^3 + 27x^2 + 18x - 13$. Evaluate $f(5)$.

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Polynomial Operations PRACTICE (version 19)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -6x^5 - 5x^3 - 2x^2 - x + 9$$

$$q(x) = -4x^5 - 10x^4 - 7x^2 - 5x + 9$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -6x^2 - 5x + 8$$

$$b(x) = 3x + 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 19)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= x^3 - 10x^2 + 26x - 4 \\g(x) &= x - 6\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 6}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = x^3 - 10x^2 + 26x - 4$. Evaluate $f(6)$.

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Polynomial Operations PRACTICE (version 20)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -8x^5 - 2x^4 - 9x^2 - 5x - 6$$

$$q(x) = -8x^5 - 2x^4 + 7x^3 + x + 5$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -2x^2 + 6x + 3$$

$$b(x) = -6x + 3$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 20)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -2x^3 + 10x^2 + 9x + 14 \\g(x) &= x - 6\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 6}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -2x^3 + 10x^2 + 9x + 14$. Evaluate $f(6)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 21)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -3x^5 + 9x^4 + 2x^3 + 5x + 10$$

$$q(x) = 6x^5 + 3x^3 + 4x^2 - 5x - 9$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 9x^2 + 8x + 3$$

$$b(x) = -4x + 3$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 21)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 2x^3 - 18x^2 + 16x - 10 \\g(x) &= x - 8\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 2x^3 - 18x^2 + 16x - 10$. Evaluate $f(8)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 22)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 + x^4 + 3x^2 - 7x + 4$$

$$q(x) = x^5 - 2x^3 + 10x^2 + 9x - 5$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -6x^2 + 3x - 9$$

$$b(x) = -5x + 4$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 22)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -4x^3 + 27x^2 - 17x + 3 \\g(x) &= x - 6\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 6}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -4x^3 + 27x^2 - 17x + 3$. Evaluate $f(6)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 23)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 - 3x^3 - 7x^2 - 5x + 2$$

$$q(x) = 4x^5 + 3x^4 + 6x^3 + 7x - 5$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -4x^2 + 8x + 7$$

$$b(x) = -6x + 2$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 23)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 3x^3 + 21x^2 + 14x - 26 \\g(x) &= x + 6\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+6}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 3x^3 + 21x^2 + 14x - 26$. Evaluate $f(-6)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 24)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 + 7x^4 + 2x^3 + 5x - 10$$

$$q(x) = -8x^5 - 7x^4 + 10x^3 - x^2 - 6$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -2x^2 + 5x - 4$$

$$b(x) = 6x + 5$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 24)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= x^3 + 12x^2 + 28x + 11 \\g(x) &= x + 9\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+9}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = x^3 + 12x^2 + 28x + 11$. Evaluate $f(-9)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 25)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 + 9x^4 + x^3 + 2x - 3$$

$$q(x) = 9x^5 - 2x^3 - 3x^2 + 5x + 1$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -2x^2 - 6x + 8$$

$$b(x) = -6x - 5$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 25)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 2x^3 + 16x^2 + 13x - 4 \\g(x) &= x + 7\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+7}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 2x^3 + 16x^2 + 13x - 4$. Evaluate $f(-7)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 26)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 + 3x^4 + x^3 + 7x^2 - 4$$

$$q(x) = -3x^5 + 10x^4 - 8x^3 + 5x - 4$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 6x^2 + 2x - 9$$

$$b(x) = -5x - 3$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 26)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -6x^3 - 29x^2 + 7x + 18 \\g(x) &= x + 5\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+5}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -6x^3 - 29x^2 + 7x + 18$. Evaluate $f(-5)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 27)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -6x^5 - 8x^3 - 3x^2 - x - 10$$

$$q(x) = -8x^5 - x^4 + 9x^2 - 6x - 10$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -6x^2 - 3x - 5$$

$$b(x) = -9x + 5$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 27)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 7x^3 + 29x^2 - 29x + 13 \\g(x) &= x + 5\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+5}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 7x^3 + 29x^2 - 29x + 13$. Evaluate $f(-5)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 28)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -9x^5 - 2x^3 + 6x^2 - 5x - 3$$

$$q(x) = 8x^5 + 10x^4 + 9x^3 - 5x^2 - 1$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 9x^2 + 3x + 8$$

$$b(x) = 4x + 6$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 28)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= x^3 - 8x^2 + x - 13 \\g(x) &= x - 8\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = x^3 - 8x^2 + x - 13$. Evaluate $f(8)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 29)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -10x^5 + 5x^3 + 3x^2 + 4x + 9$$

$$q(x) = -4x^5 - 6x^4 - 8x^3 + 2x^2 - 3$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 6x^2 - 5x - 4$$

$$b(x) = -2x - 8$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 29)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -4x^3 + 25x^2 + 23x - 13 \\g(x) &= x - 7\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 7}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -4x^3 + 25x^2 + 23x - 13$. Evaluate $f(7)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 30)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -2x^5 + 3x^4 + x^2 - 9x + 10$$

$$q(x) = 3x^5 + x^3 - 5x^2 - 8x + 6$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -2x^2 + 5x - 3$$

$$b(x) = -7x - 4$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 30)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -2x^3 - 16x^2 - 2x - 20 \\g(x) &= x + 8\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -2x^3 - 16x^2 - 2x - 20$. Evaluate $f(-8)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 31)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -8x^5 + 3x^3 + 6x^2 + x + 10$$

$$q(x) = 2x^5 + x^4 - 6x^3 - 8x^2 + 9$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -9x^2 - 7x + 3$$

$$b(x) = 3x - 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 31)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 3x^3 - 12x^2 + x - 5 \\g(x) &= x - 4\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 4}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 3x^3 - 12x^2 + x - 5$. Evaluate $f(4)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 32)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 4x^5 - 9x^4 + x^3 + 3x - 6$$

$$q(x) = -3x^5 + 9x^4 - 6x^2 + 4x - 5$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -8x^2 - 3x + 9$$

$$b(x) = -5x + 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 32)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -x^3 - 9x^2 + 3x + 20 \\g(x) &= x + 9\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x + 9}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -x^3 - 9x^2 + 3x + 20$. Evaluate $f(-9)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 33)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -9x^5 + 2x^4 - 4x^2 + x + 5$$

$$q(x) = 6x^5 + 2x^4 + 10x^3 - 4x^2 - 3$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -7x^2 - 5x + 2$$

$$b(x) = -8x + 7$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 33)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 5x^3 + 15x^2 - 19x + 12 \\g(x) &= x + 4\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+4}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 5x^3 + 15x^2 - 19x + 12$. Evaluate $f(-4)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 34)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -9x^5 + 8x^3 + 6x^2 + 7x + 4$$

$$q(x) = 3x^5 - 10x^4 + x^3 - 9x^2 - 8$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 2x^2 - 8x - 4$$

$$b(x) = 5x + 6$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 34)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 2x^3 + 16x^2 + 11x - 26 \\g(x) &= x + 7\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+7}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 2x^3 + 16x^2 + 11x - 26$. Evaluate $f(-7)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 35)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 + x^4 - 3x^2 + 9x - 5$$

$$q(x) = 9x^5 - 5x^4 - x^3 - 3x^2 - 10$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -6x^2 - 5x + 3$$

$$b(x) = -9x + 6$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^6$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 35)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= -3x^3 - 24x^2 + x + 18 \\g(x) &= x + 8\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = -3x^3 - 24x^2 + x + 18$. Evaluate $f(-8)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 36)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -3x^5 - 8x^3 - x^2 - 2x + 9$$

$$q(x) = -5x^5 + 8x^4 + 6x^2 + 2x - 3$$

Express the difference $q(x) - p(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -3x^2 - 6x - 5$$

$$b(x) = 4x + 5$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 36)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 3x^3 - 25x^2 - 18x + 10 \\g(x) &= x - 9\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 9}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 3x^3 - 25x^2 - 18x + 10$. Evaluate $f(9)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 37)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = 8x^5 + 2x^4 - 5x^2 + 4x - 1$$

$$q(x) = 3x^5 - x^4 - 4x^3 + 7x + 2$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 4x^2 + 8x - 7$$

$$b(x) = -2x - 5$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 37)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 3x^3 + 25x^2 + 12x + 23 \\g(x) &= x + 8\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x+8}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 3x^3 + 25x^2 + 12x + 23$. Evaluate $f(-8)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 38)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -5x^5 + 2x^3 - 4x^2 + 8x + 7$$

$$q(x) = -8x^5 - 9x^4 - 6x^3 + 5x^2 - 10$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = 8x^2 + 6x - 9$$

$$b(x) = -6x - 4$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 38)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 4x^3 - 25x^2 - 25x + 22 \\g(x) &= x - 7\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 7}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 4x^3 - 25x^2 - 25x + 22$. Evaluate $f(7)$.

Name: _____ Date: _____

Polynomial Operations PRACTICE (version 39)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -8x^5 + 2x^3 + 5x^2 - 6x + 4$$

$$q(x) = -8x^5 - 10x^4 - 7x^3 + x - 5$$

Express the difference $p(x) - q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -8x^2 - 3x + 7$$

$$b(x) = -2x + 3$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^4$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 39)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= 7x^3 - 29x^2 - 29x - 13 \\g(x) &= x - 5\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x - 5}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = 7x^3 - 29x^2 - 29x - 13$. Evaluate $f(5)$.

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Polynomial Operations PRACTICE (version 40)

1. Let polynomials $p(x)$ and $q(x)$ be defined below.

$$p(x) = -2x^5 + 10x^4 + 8x^3 - 5x^2 - 7$$

$$q(x) = 8x^5 + 7x^4 + 5x^3 - 10x - 2$$

Express the sum of $p(x) + q(x)$ in standard form.

2. Let polynomials $a(x)$ and $b(x)$ be defined below.

$$a(x) = -7x^2 + 6x - 8$$

$$b(x) = -8x - 4$$

Express the product $a(x) \cdot b(x)$ in standard form.

3. Express $(x + 1)^5$ in standard (expanded) form.

Polynomial Operations PRACTICE (version 40)

4. Let polynomials $f(x)$ and $g(x)$ be defined below.

$$\begin{aligned}f(x) &= x^3 + 12x^2 + 26x - 1 \\g(x) &= x + 9\end{aligned}$$

The quotient of $\frac{f(x)}{g(x)}$ can be expressed as a polynomial, $h(x)$, and a remainder, R (a real number).

$$\frac{f(x)}{g(x)} = h(x) + \frac{R}{x + 9}$$

By using synthetic division or long division, express $h(x)$ in standard form, and find the remainder R .

5. Let polynomial $f(x)$ still be defined as $f(x) = x^3 + 12x^2 + 26x - 1$. Evaluate $f(-9)$.